The AMC RDEC Federation

Collaborative Development & Integration Environment

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Transforming Fires in the 21st Century

But first, a brief quiz…

- ☑ Will the Army's future forces be *distributed*?
- ☑ Will they be interconnected by a *real time* network?
- ☑ Will there be a need to operate in a *collaborative* environment?
- ☑ Will the Army's future technologies be a *heterogeneous* mixture?
- ☑ Will technologies need to be *integrated* during development?
- ☑ Will there be heavy reliance on *modeling and simulation*?

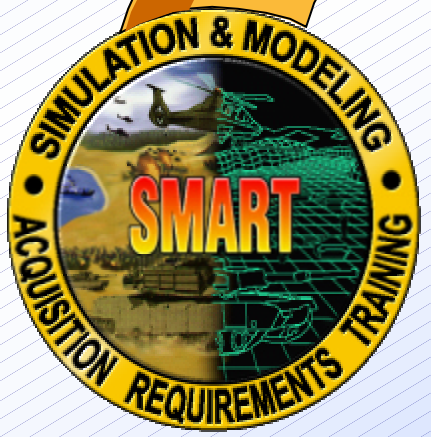
extra credit question

- ? Does the Army have experience with?
  - *? Distributed*
  - *? Real time*
  - *? Collaborative*
  - *? Heterogeneous*
  - *? Integrated*
  - *? Modeling and Simulation*

RDEC Federation: Lineage

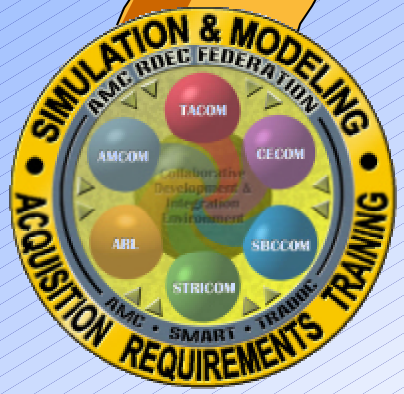
SBA Vision

"an acquisition process in which DoD and Industry are enabled by robust, collaborative use of simulation technology that is integrated across acquisition phases and programs."



The Army's vision for SMART is a process by which we capitalize on Modeling and Simulation (M&S) technology to address the issue of system development and life-cycle costs through the combined efforts of the requirements, training, and acquisition communities.

RDEC Federation: Vision



- *To develop a persistent AMC-wide distributed modeling and simulation environment* **that will permit the overall research, development and acquisition community to have wide access, linkage, and integrated use of a diverse set of models and simulators available at each of the federation partner laboratories/facilities.**

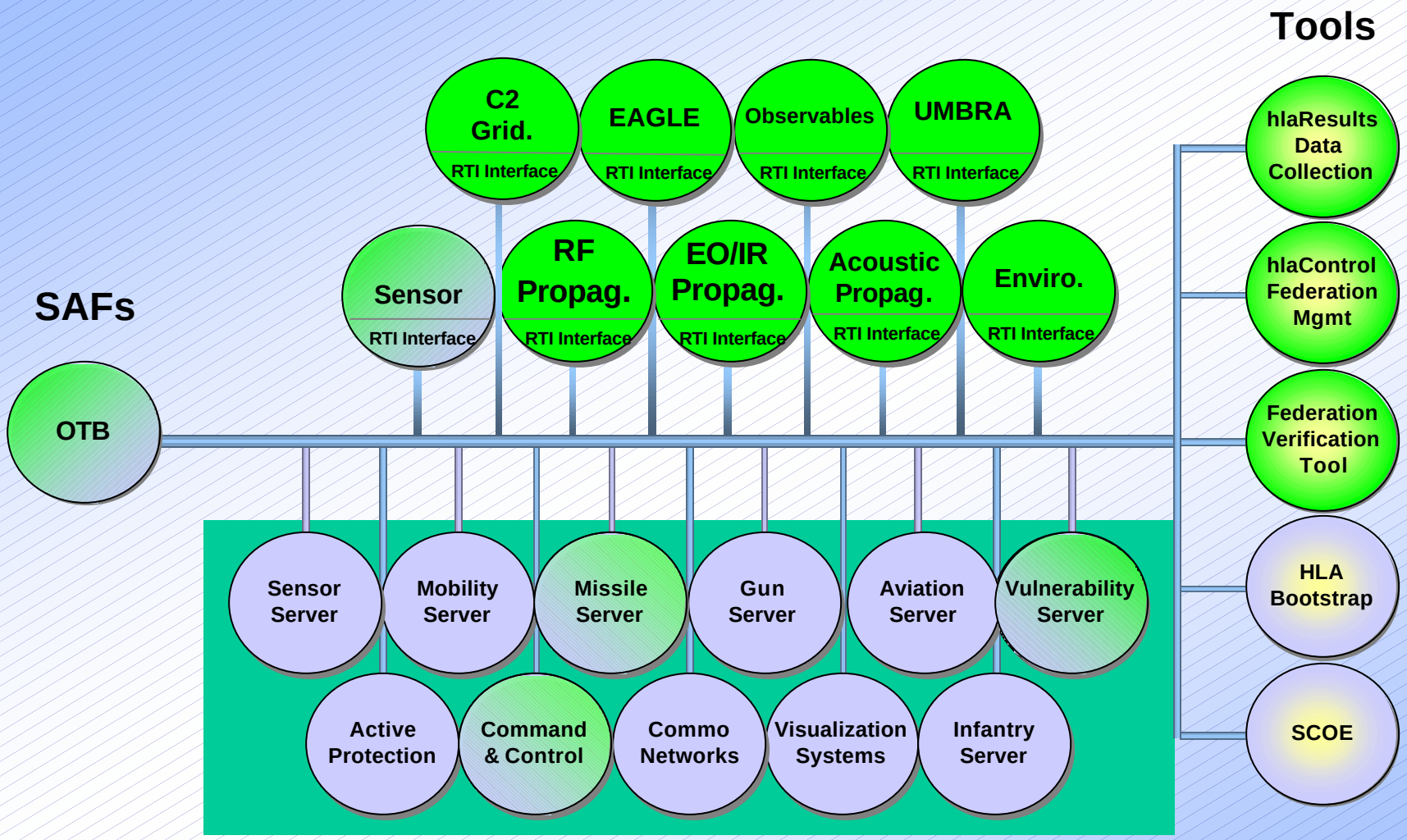
- *To provide a capability for representing and evaluating*, **through distributed modeling and simulation,** *a wide range of technologies*, **military systems, mission equipment, and battle space capabilities.**

- *To provide a capability for addressing issues from both an individual platform and system-of-systems perspective* **for the optimal development, integration, and evolution of information, communication, mission equipment, weapon systems, and platform technologies.**

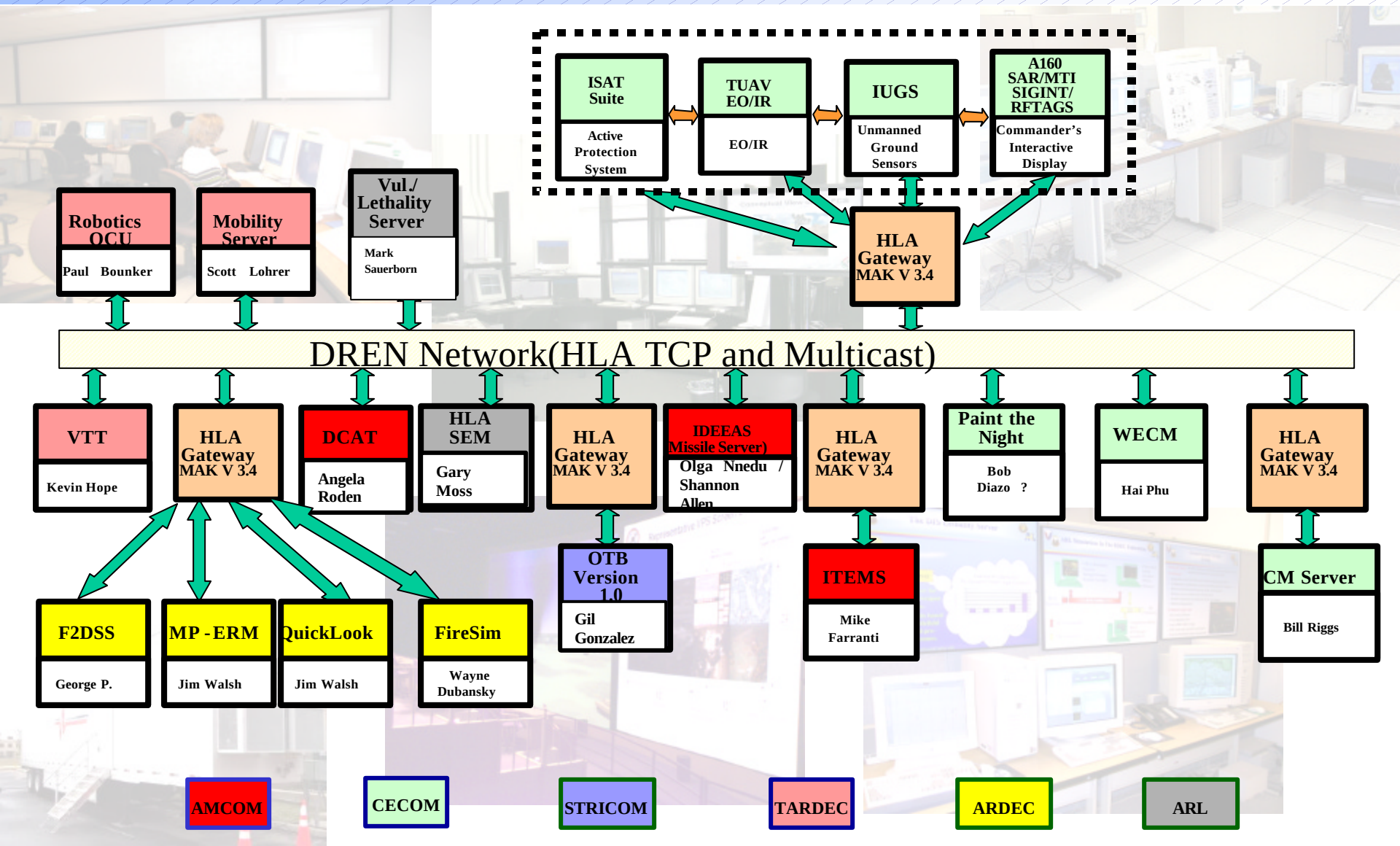
RDEC Federation: Members

- TARDEC (Warren, MI)
- ARDEC (Picatinny Arsenal , NJ)
- CERDEC - NVESD (Ft. Belvoir, VA)
- CERDEC - I2WD (Ft. Monmouth, NJ)
- AMRDEC (Redstone Arsenal, AL)
- STRICOM (Orlando, FL)
- ARL (Aberdeen Proving Ground, MD)
- SBCCOM (Natick, MA)
- SBCCOM (Edgewood, MD)

RDEC Federation: Partners

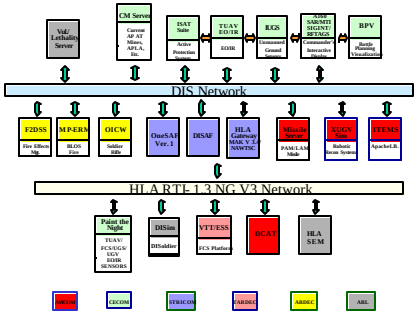


RDEC Federation: Network



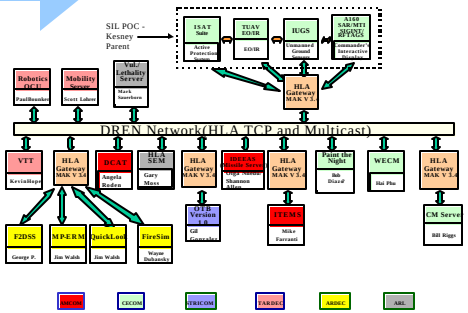
RDEC Federation: Experience

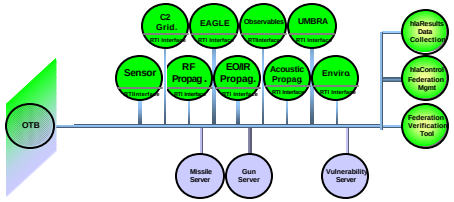
April May June July August September October November December January February March



SMART 2001- Co-located Hybrid DIS/HLA Demo on Conference floor.

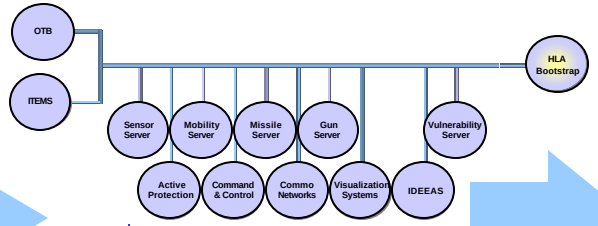
CalEx – Distributed analytical experiment Over DREN





JVB – Integrating top 3 priority federates: Missile Server, Vulnerability Server, F2DSS

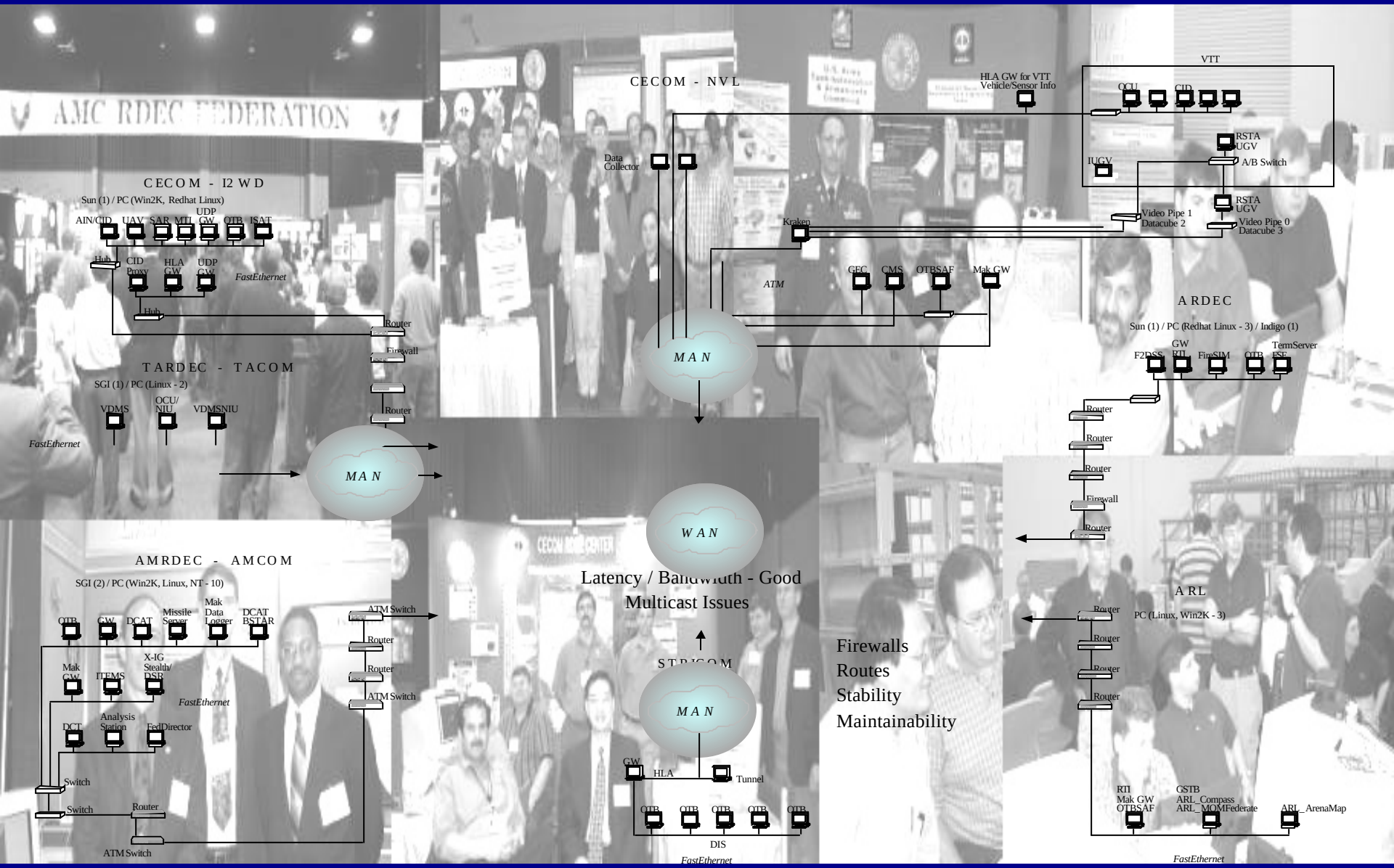
Continued Migration



OFSS – RDEC Federation excursions using distributed federation standalone from JVB

Proven continuously functional and usable through weekly integration events

RDEC Federation: Collaboration



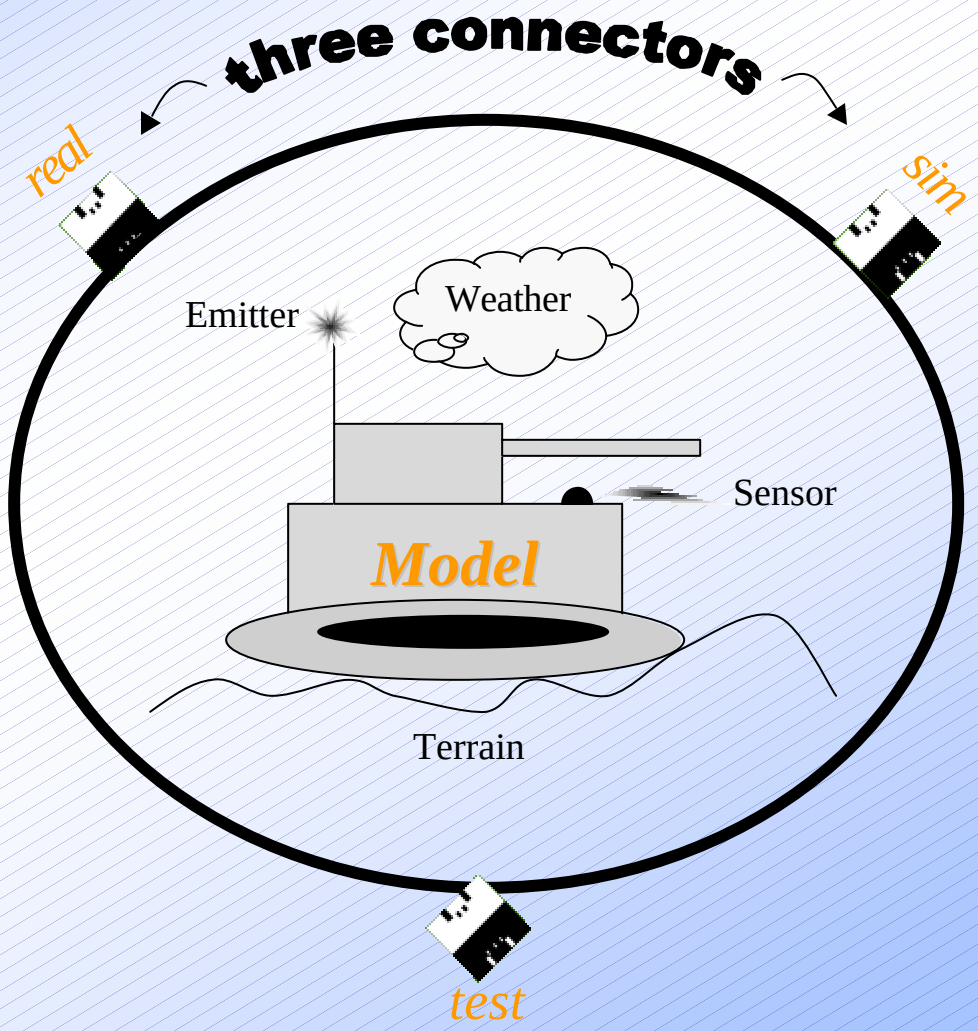
RDEC Federation: Goals

- Scenarios are drag and drop on a web site
- Models plug and play over a distributed network
- Models are interchangeable with physical entity
  - model interfaces same as physical entity interfaces
  - when physical entity is a network component – don't model
  - when physical entity is software – don't model
- Scenarios run at variable speeds
  - at model speed for high resolution
  - at real time for man-in-the-loop simulations
  - at high speed for statistical analysis
- Same model used in all domains
  - ACR: Advanced Concepts Requirements
  - RDA: Research, Development, Acquisition
  - TEMO: Test, Evaluation, Military Operations

Subject Matter Expert for physical entity also certifies its model!

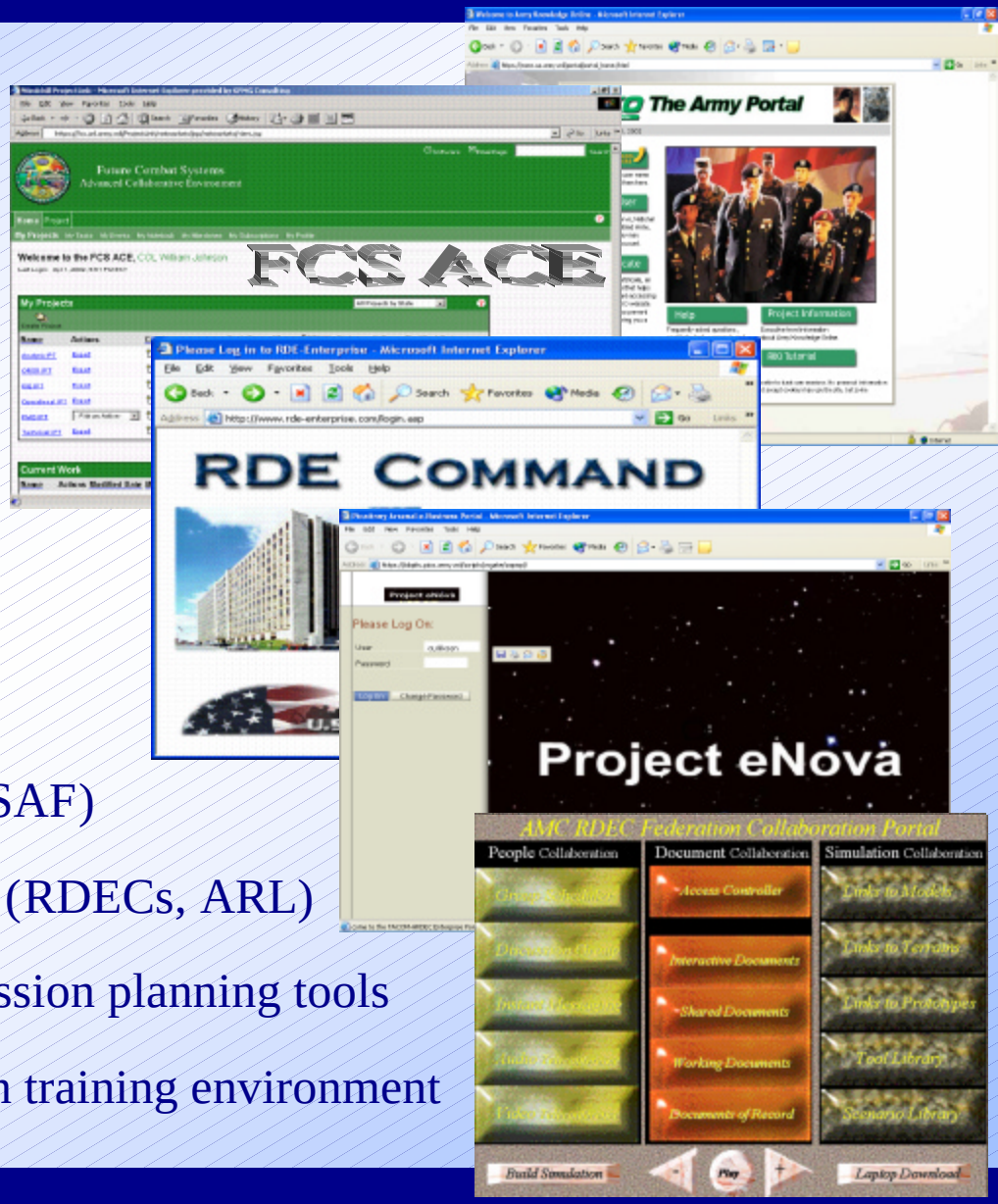
RDEC Federation: Guiding Principles

- ***Principle #1:*** models 'plug in' the same way as the real thing
- ***Principle #2:*** All entities are modeled the same way
- ***Principle #3:*** All servers are common resources
- ***Principle #4:*** Don't model software systems – just use them
- ***Principle #5:*** Scenarios are scripted via drag-and-drop interface



There's more to it than M&S…

- Collaboration among people
- Product Data Management
  - Tools (OTB, RTI, HLA Gateway, etc.)
  - Models (Missiles, Armaments, etc.)
  - Terrains (Bosnia, Afghanistan, etc.)
  - Scenarios (Fombler's Ford, etc.)
- Distributed prototype engineering
- Drag and Drop Scenario builder (OneSAF)
- Drag and Drop certified model library (RDECs, ARL)
- Synchronization with laptop-based mission planning tools
- Reuse of development environments in training environment



AMC RDEC Federation Collaboration Portal

People Collaboration

- Group Scheduler
- Discussion Group
- Instant Messaging
- Audio Teleconference
- Video Teleconference

Document Collaboration

- Access Controller
- Interactive Documents
- Shared Documents
- Working Documents
- Documents of Record

Simulation Collaboration

- Links to Models
- Links to Terrains
- Links to Prototypes
- Tool Library
- Scenario Library

Build Simulation

Laptop Download

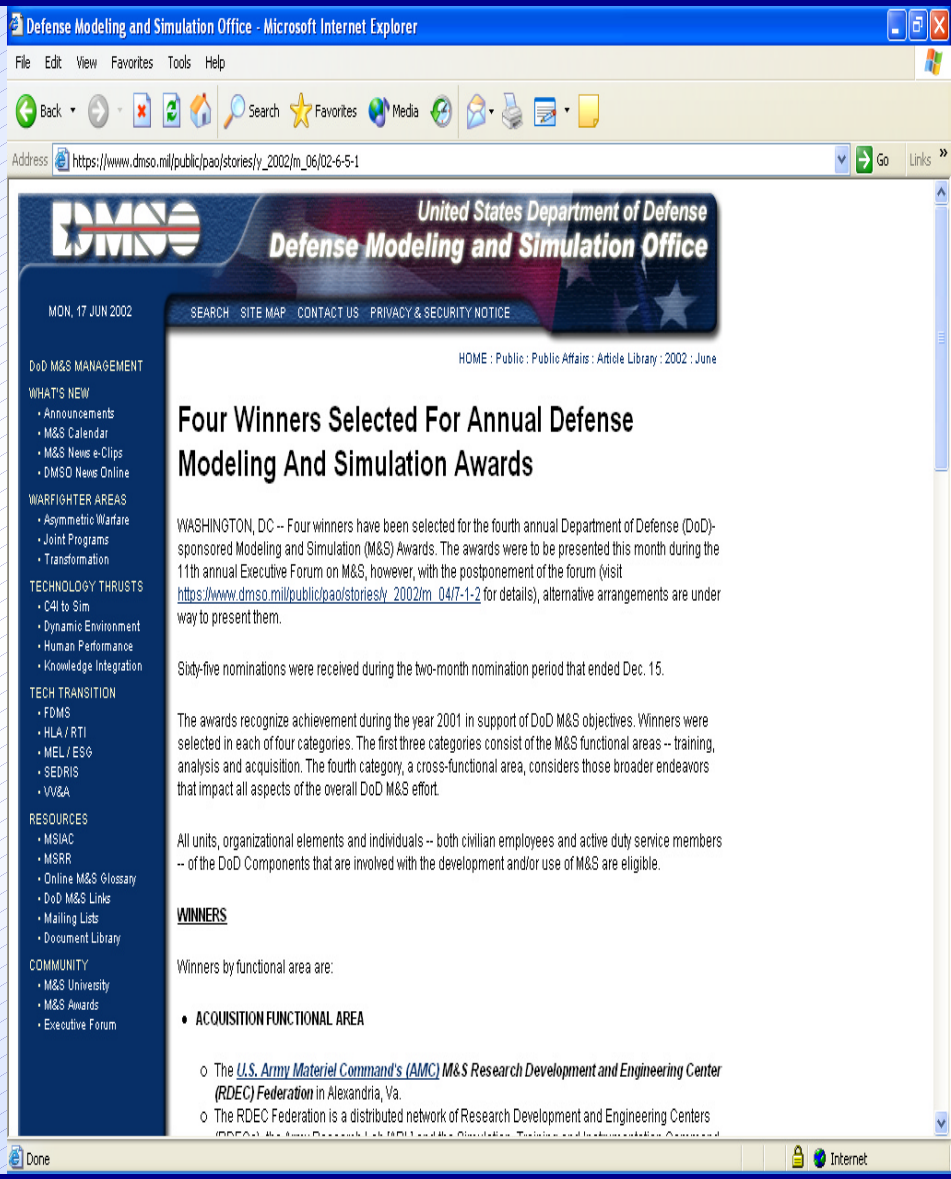
RDEC Federation: Recognition

Annual Defense M&S Award

- Excellence, innovation, achievement
- Enhancing M&S awareness
- Advancing M&S state-of-the-art
- Contributing to interoperability
- Developing architectures
- Developing standards

Endorsements

- DUSA-OR (Walt Hollis)
- AMSO (Dell Lunceford)
- FCS (Kent Pickett)
- TRAC (Mike Bauman)
- ASAALT (Dr. Larry Stotts)



Can you answer the extra credit question?

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